

REMARKS

This paper is responsive to the Final Office Action dated January 27, 2006 (“the Office Action”).

Claims 1-22 were previously pending in the application.

Claims 1-22 stand rejected.

Claims 16 and 21 have been amended.

Accordingly, claims 1-22 remain pending.

Claims 1, 3, 6, 9-14, and 16-21 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,006,192 issued to Cheng et al. (“*Cheng*”) in view of U.S. Patent No. 5,930,762 issued to Masch (“*Masch*”). Claims 2, 4, 5, 7, 8, 10, 11, 15, and 22 stand rejected under § 103(a) as being unpatentable over *Cheng* in view of *Masch* and further in view of U.S. Patent No. 6,453,303 issued to Li. (“*Li*”). Claims 16 and 21 have been amended. The amendments add no new matter.

While not conceding that the cited references qualify as prior art, but instead to expedite prosecution, Applicant has chosen respectfully to address the rejections as follows. Applicant reserves the right, for example in a continuing application, to establish that one or more of the cited references do not qualify as prior art as to an invention embodiment previously, currently, or subsequently claimed. Applicant respectfully submits that the claims are patentable and respectfully requests reconsideration of the pending rejections in view of the remarks presented herein.

Rejections under 35 U.S.C. § 101

Claims 1-8 previously stood rejected under 35 U.S.C. § 101 as being directed to non-statutory subject matter. Applicant responded to the rejections under § 101 in Applicant’s Responses dated August 9, 2005 and November 10, 2005. The present Office Action includes some ambiguity regarding the current status of the rejections under § 101.

Section 3 of the current Office Action states, under a heading of “Claim Rejections – 35 USC § 101,” that Applicant’s arguments were “not persuasive.” This section does not, however, identify any claims as being rejected under § 101, and further, does not provide a rationale for any such continuing rejection.

Applicant believes the comment in Section 3 of the Office Action to be a typographical error, since the Office Action does not include any discussion of a rejection under § 101, and further since Section 2 of the Office Action indicates that the previous rejection under § 101 has been withdrawn in light of Applicant’s previous Responses.

Accordingly, Applicant understands the previous rejection under § 101 to be withdrawn. If this understanding is incorrect, Applicant respectfully requests a clarification of the nature of the continued rejection under § 101—and a withdrawal of the finality of the Office Action—so that Applicant may have an appropriate opportunity to respond to the rejection.

The Rejections under 35 U.S.C. § 103(a)

Applicant gratefully acknowledges the Examiner’s review of the previous Response and the comments addressing Applicant’s arguments in the present Office Action. The Office Action maintains the rejections of claims 1-22 as being unpatentable under § 103. For the following reasons, Applicant respectfully disagrees with these conclusions of the Office Action, and respectfully requests a reconsideration of the rejections.

Among the limitations of independent claim 1 is the act of “**specifying a component plan to be analyzed, the component plan identifying the quantities of each component that are positioned for each planning period.**” The Office Action argues that this limitation is presented in the following portion of *Cheng*.

The detailed description of the invention is organized as follows. In Section 1, we introduce the notation and present a deterministic version of materials planning problems. The concept of Payoff Table is discussed in Section 2. Illustrative algorithms are provided in Section 3. We describe the graphical user interface developed for Payoff Table in Section 4. Finally, a complete example is presented in Section 5.

1. Formulation of the Materials Planning Problem

To formulate the problem defined in the PPPT computation, we introduce the following notation for a deterministic materials planning problem.

T , set of periods that comprise the planning horizon.

J , set of products.

$J_e \subseteq J$, set of end products.

$J_a \subseteq J$, set of subassemblies.

I , set of components.

$I_r \subseteq I$, set of out-sourcing components. (Note, $I_r \cap J_a = \text{empty}$ and $I = I_r \cup J_a$.)

$I_j \subseteq I$, set of components in the BOM of product $j \in J$.

$d_{j,t}$, demand for end product $j \in J_e$ in period t .

c_j , cycle time of product $j \in J$.

O_{ij} offset for component i in the cycle time of product j for $i \in I_j$ and $j \in J$.

a_{ij} amount of component i that is needed by one unit of product j for $i \in I_j$ and $j \in J$.

$h_{i,t}$, unit holding cost for component $i \in I$ in period t .

$h_{j,t}^e$, unit holding cost for end product $j \in J_e$ in period t .

$r_{j,t}$, unit penalty for unsatisfied demand of end product $j \in J_e$ in period t .

Variables:

$C_{j,t}$, ending inventory of product $j \in J_e$ in period t .

$Z_{j,t}$, production volume of end product $j \in J_e$ in period t .

$L_{j,t}$, unsatisfied demand of end product $j \in J_e$ in period t .

$Q_{i,t}$, ending inventory of component $i \in I$ in period t .

$Y_{i,t}$, consumed volume of component $i \in I$ in period t .

$X_{i,t}$, production/procurement volume of component $i \in I$ in period t .

Note

$C_{j,0}$, initial inventory of product $j \in J_e$ at the beginning of the planning horizon.

$Q_{i,0}$, initial inventory of component $i \in I$ at the beginning of the planning horizon.

Production and procurement decisions are made at the beginning of each period based on the information available at that time. Demands materialize by the end of each period. Unsatisfied demand will be backlogged, and inventories will be carried over to the next period. At the end of the planning horizon, all left over inventories of components and end products will be salvaged.

Cheng at col. 3, lines 9-60.

The cited section of *Cheng* introduces mathematical variables used in the ensuing discussion of a materials planning problem. Applicant respectfully submits that the particular parts of the cited references that the Examiner has relied upon have not been designated as nearly as practicable, as required by 37 C.F.R. § 1.104(c)(2). In particular, the Office Action does not clearly indicate which variables in the above-cited list from *Cheng* are proposed as being related to the limitation of “the component plan identifying the quantities of each component that are

positioned for each planning period.” Nevertheless, the Applicant has made every effort to respond to the rejections outlined by the Examiner.

Among the variables introduced are $Q_{i,t}$, $Q_{i,0}$, $X_{i,t}$, and a_{ij} , defined as an “ending inventory of component $i \in I$ in period t ,” an “initial inventory of component $i \in I$ at the beginning of the planning horizon,” a “production/procurement volume of component $i \in I$ in period t ,” and an “amount of component i that is needed by one unit of product j for $i \in I, j$ and $j \in J$,” respectively.

These four variables represent components in the materials planning problem of *Cheng*. No other aspect of the above-cited passage describes amounts of components; the variables $Q_{i,t}$, $Q_{i,0}$, $X_{i,t}$, and a_{ij} are the only features in the cited passage that relate to amounts of components. Thus, these are the only aspects of the cited passage that may possibly correspond to the above-cited claim limitation regarding a “component plan identifying the quantities of each component that are to be positioned for each planning period.”

However, none of these four variables are quantities that are specified by as an input to be analyzed. Rather, they are internal variables used by a mathematical analysis in *Cheng*. In contrast, claim 1 includes “specifying” a component plan to be analyzed. The component plan to be analyzed identifies the quantities of each component that are positioned for each planning period. Thus, the language of the claim makes clear that the component plan includes information specified *prior* to the ensuing analysis (since it is a component plan “to be analyzed”).

It may be argued that a user of the *Cheng* system may specify an aspect of an initial inventory using one of the four variable discussed above—the initial inventory $Q_{i,0}$ of component i . If this is the case, such an initialization is entered at most once, “at the beginning of the planning horizon” for $Q_{i,0}$. *Id.* at col. 3, lines 51-52.

In contrast, the component plan in claim 1 identifies quantities of each component “for each planning period.” *Cheng* does not teach that such quantities should be specified throughout a series of planning periods. Thus, this limitation is not present in *Cheng*, which has the entry of (at most) only one initial inventory $Q_{i,0}$, which occurs (if at all) at the beginning of an entire planning horizon. *Id.*

The cited portions of *Chang* therefore fail to disclose the limitation of “specifying a component plan to be analyzed, the component plan identifying the quantities of each component that are positioned for each planning period.” Further, Applicant also does not find this limitation is in *Masch* or in *Li*. Since this limitation is not disclosed in the cited art, independent claim 1 and all claims dependent therefrom are allowable under § 103(a). At least for similar reasons, independent claims 9 and 16 and all claims dependent therefrom are also allowable under § 103(a).

Additionally, none of the variables in *Cheng* is a quantity of components “**positioned for each planning period,**” as set forth in independent claim 1. As set forth in the Definitions in the specification, “positioning is an alternative to ordering components.” By positioning a component, a company or other entity “arrange[s] for it to be available without actually putting the component in inventory. Thus, as an example, a supplier may agree to provide a certain quantity of a component during a particular time frame. The component is positioned in that quantity for that time frame.” Specification at 5.

The *Cheng* system does not use information regarding positioned components. *Cheng* does not discuss the possibility of having components available without actually putting them in inventory. Rather, *Cheng* only relates to amounts of components that are available in inventory, and does not distinguish between inventoried components and positioned components.

Accordingly, *Cheng* does not discuss, teach, or suggest “identifying the quantities of each component that are positioned for each planning period.” Thus, this additional limitation is not disclosed in the cited portions of the references. Further, Applicant also does not find this limitation is in *Masch* or in *Li*. For these reasons as well, independent claim 1 and all claims dependent therefrom are allowable under § 103(a).

Similarly, claim 9 includes a limitation of capturing assumptions about products and components to create a scenario. The scenario describes the demand, financial, and operational information for one or more products and components for one or more time planning periods. Further, **“the components include uninventoried available components.”**

As noted on page 3 of the Office Action, this limitation is not disclosed in *Cheng*.

Nevertheless, the Office Action proposes that:

incorporating this feature into Chen[g] would have been obvious to a person of ordinary skill in the art at the time of the applicant’s invention in order to provide inventory minimization and revenue maximization.

Office Action at 3.

Applicant respectfully disagrees. Applicant respectfully submits that the particular parts of the cited references that the Examiner has relied upon have not been designated as nearly as practicable as required by 37 C.F.R. § 1.104(c)(2). *See also* MPEP § 706.02(j).

The Office Action does not point to any reference that describes, teaches, or even suggests the proposed modification. At best, the Office Action opines that such a modification may provide a benefit of “inventory minimization and revenue maximization.” Applicant submits that even if a person having ordinary skill in the art were motivated with such a goal, this goal would not make the proposed modification obvious.

A person having ordinary skill in the art and desiring “inventory minimization and revenue maximization” would not thereby envision the modification proposed in the Office Action. It would be a far leap of the imagination to go from wishing for “inventory minimization and revenue maximization” to implementing the claimed limitation of capturing assumptions about products and components where the components include uninventoried available components.

This limitation of claim 9 is therefore absent from *Cheng*, and is not obvious in light of *Cheng*. Independent claim 9 and all claims dependent therefrom are allowable under § 103(a). At least for similar reasons, independent claim 16 and all claims dependent therefrom are also allowable under § 103(a).

In view of the limitations that are absent from the cited art, Applicant submits that claims 1-22 are allowable under § 103(a). Accordingly, Applicant respectfully requests that the rejections of claims 1-22 under § 103(a) be withdrawn.

Further, as previously discussed in Applicant's Responses of August 9, 2005 and November 10, 2005, the cited references do not provide a proper suggestion or motivation to make the proposed combination of references under § 103(a). With regard to independent claim 1, for example, the stated motivation for making the combination of references is "in order to aid decision-makers in selecting an implementable strategy."

This motivation is not based on any teaching or observation in *Cheng* that points a reader skilled in the art to seek the teaching of *Masch*. Rather, *Cheng* itself sets forth techniques that aid decision makers in selecting an implementable strategy. For example, *Cheng* refers to existing tools for obtaining implementable policies. *Cheng* at col. 2, lines 19-25. Further, *Cheng* provides additional techniques and observations "to make the production plan implementable." *Id.* at col. 8, lines 30-32. Thus, with regard to the proposed motivation for combining references, *Masch* is unnecessary. A person skilled in the art would not have a motivation to combine *Masch* with *Cheng*, since the teachings of *Cheng* obviate the need for such a combination.

The Office Action therefore does not establish a *prima facie* case of obviousness of claim 1. Accordingly, independent claim 1 and all claims dependent therefrom are allowable under § 103(a). At least for similar reasons, independent claims 9 and 16 and all claims dependent therefrom are also allowable under § 103(a).

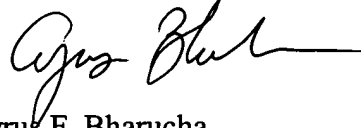
CONCLUSION

Applicant submits that all claims are now in condition for allowance, and an early notice to that effect is earnestly solicited. Nonetheless, should any issues remain that might be subject to resolution through a telephonic interview, the Examiner is requested to telephone the undersigned.

I hereby certify that this correspondence is being deposited with the United States Postal Service as First Class Mail in an envelope addressed to: Mail Stop AF, Commissioner for Patents, P. O. Box 1450, Alexandria, Virginia, 22313-1450, on March 27, 2006.

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Attorney for Applicant Date of Signature

Respectfully submitted,



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